Chapter 4A: Natural Resources

Introduction

This section addresses the natural resources and vital areas found in Hoschton as defined in the Minimum Planning Standards and Procedures, Rules of the Georgia Department of Community Affairs, Chapter 110-3-2, as amended. Under the Georgia Planning Act of 1989, natural resources include groundwater recharge areas, rivers, wetlands, protected mountains and river corridors, coastal resources, floodplains, soils, steep slopes, prime agricultural and forest land, plant and animal habitat, major park, recreation and conservation areas, and scenic views and sites. To preserve and protect a community's natural resources, the Department of Natural Resources established minimum protection standards for natural resources, the environment and vital areas of the state, specifically, water supply watersheds, groundwater recharge areas, wetlands, river corridors, and mountains.

Physiography and Topography

Topography and slope are important considerations in local planning because they provide indicators of suitability and cost of developing particular sites. Local relief and slope characteristics should be considered, particularly along streams of significant slope, flat or low-lying areas, and along ridges, hillsides and streams. Development without regard to slope and relief can damage the natural environment through increased stormwater runoff and soil erosion. In addition, an area's aesthetic quality can be damaged without consideration to topography.

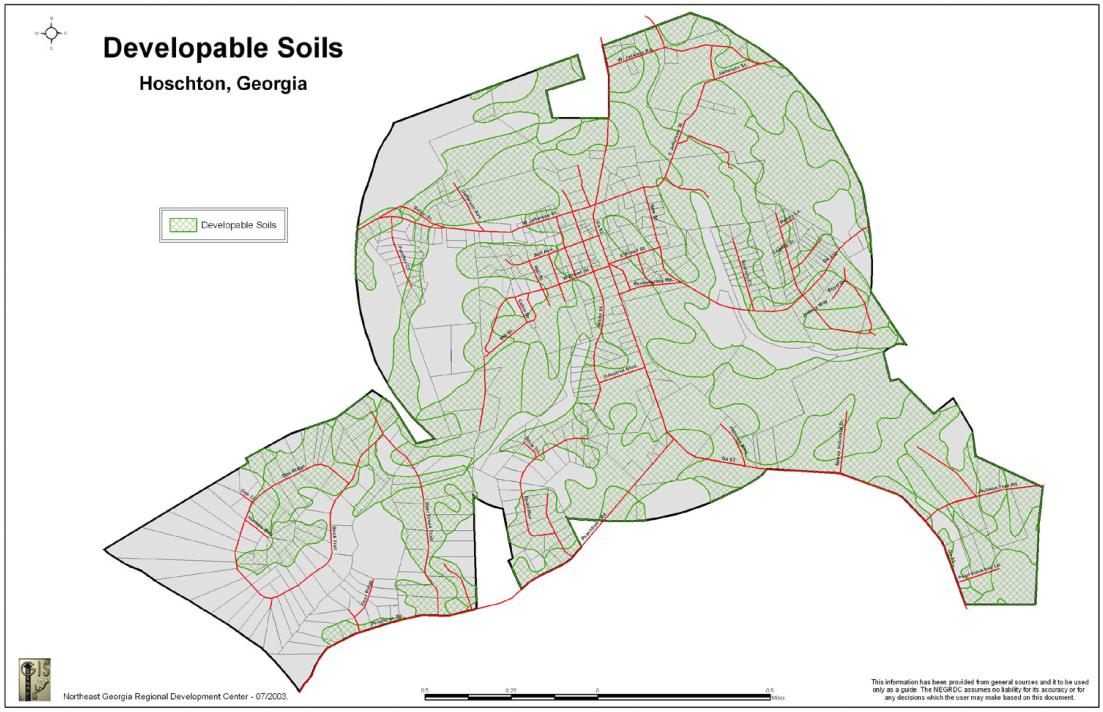
Jackson County, located on the upper fringes of the Piedmont Plateau section of Georgia, is adjacent to Banks, Barrow, Clarke, Hall, and Madison counties. The county covers 342 square miles, or 218,957 acres, of gently rolling ridges and valleys. Some areas near streams are steep. The floodplains of the rivers and creeks are level to nearly level.

The Mulberry, Middle Oconee, and North Oconee river systems drain the entire county. Jackson County is bisected by two broad ridges that run northwest to southeast. These two ridges extend the length of the county, running from the Hall County line in the north, south toward Clarke County. About half the county's acreage lies between the tops of these two ridges and slopes inward toward the Middle Oconee River. Outside of these ridges, the remaining acreage slopes toward the North Oconee River on the east and the Mulberry River on the west. In most places, the top of the ridge that separates these drainage areas is about 900 feet above sea level. Elevations in Jackson County range from 640 feet above sea level along the North Oconee River near the Clarke County line to 1,100 above sea level just west of Talmo near the Chestnut Mountain area of Hall County.

Hoschton, located in western Jackson County, borders Braselton to the north along Highway 53 in western Jackson County. Its elevation is also approximately 900 feet.

Geology and Mineral Resources

An inventory and analysis of local geology and mineral deposits are important in determining site-specific development potential as well as opportunities for expansion of extractive industries as part of the local economic base. Information is available countywide only. Geologically, Jackson County is underlain predominately by biotitic gneiss, schist and granite gneiss. Other minerals known to exist in the county are asbestos, beryl, granite and related rock outcrops.



Soils

The map above identifies soils in Hoschton that are suitable for development.

Prime Agricultural Soils

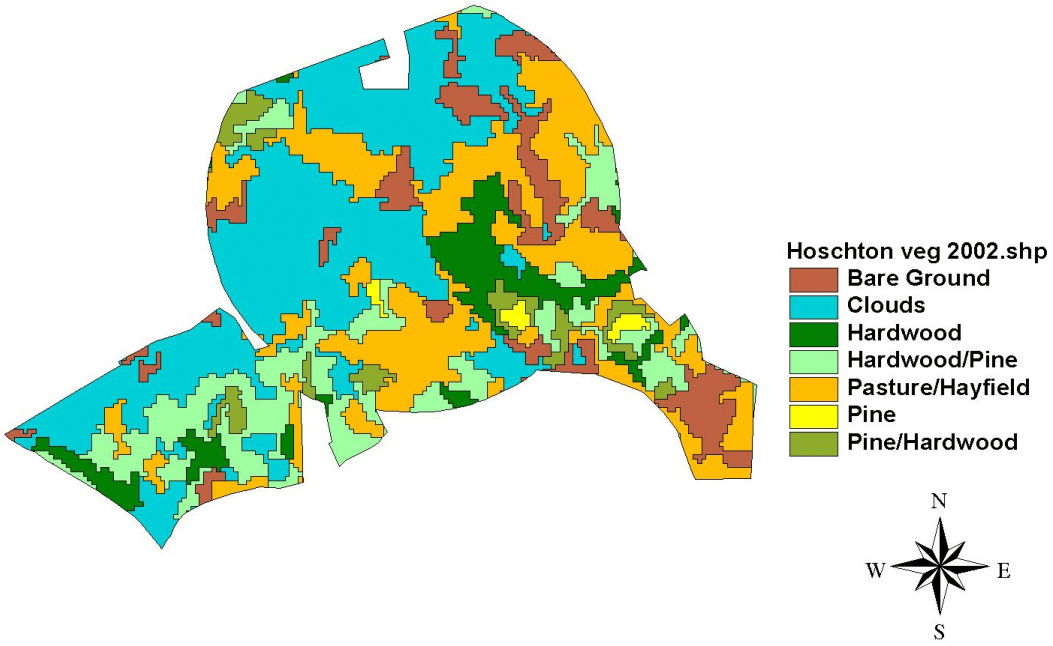
In Georgia, prime agricultural soils are soils best suited for producing food, feed, forage, fiber, and oilseed crops. These soils have the quality, growing season, and moisture supply needed to produce sustained good yields of crops economically if treated and managed, including water management. "Additional soils of statewide importance" are soils that, besides prime agricultural soils, also are important for the production of food, feed, fiber, forage, and oilseed crops. These soils economically produce good yields if drained, protected against flooding, if erosion control practices are installed, or if additional water is applied to overcome drought.

Most of Hoschton is developed and few agricultural soils remain in production.

Assessment

Soils in Hoschton pose few limitations to development. The city is served by public water and sewerage and there are few steep slopes. Protection of Hoschton's prime agricultural soils is not a concern as there is little agricultural land in the city and no row cropping. The city anticipates that such remaining land will transition to other land uses, primarily residential and commercial; therefore, protection of agricultural soils is not a priority.

Vegetation Classification 2002



Forest Resources

The city's vegetation is predominantly pasture; however, the importance of tree canopy is recognized. Tree canopy supports water quality and quantity, air quality, habitat and recreation, and reduces the urban heat island.

Clear cutting in anticipation of development is seen as a threat to the community's forest resources. The city's zoning ordinance requires landscaping with all development; however, new landscaping cannot replace the value of the mature trees that are typically sacrificed for development.

Assessment

This plan supports development and implementation of a tree ordinance. The ordinance should prohibit speculative clearing of vegetation, strive to save as much of the urban forest as possible without making development impossible, and preserve 50% of vegetation 8" diameter or greater on a development site as well as a large percentage of the tree canopy.

Habitat

The Department of Natural Resources, Freshwater Wetlands and Natural Heritage Inventory (FWNHI) section has compiled a list of rare element occurrences for Jackson County. Information is available countywide only. [1] A rare element occurrence is a "species of concern . . . considered sufficiently rare or the status unknown so as to warrant the collection of occurrence information."[2] This information is available on a county wide basis only.

Jackson County has three plant species and one animal species included by the FWNHI on its list of rare element occurrences.

Amphianthus pusillus, commonly named"Little Amphianthus," "Pool Sprite," or "Snorkelwort," is an annual aquatic herb found in shallow, flat-bottomed depression pools of granitic outcrops. These pools are usually less than a foot in depth, entirely rock-rimmed and dry in the summer after the spring rains have evaporated. Amphianthus has both floating and submerged leaves attached by delicate, lax stems. The submerged leaves are arranged in a basal rosette, lanceolate, and less than 1 cm. long. The flowers are small, white to pale violet, inconspicuous, and found both among the submerged basal leaves and between the floating surface leaves. The fruit is a small capsule, 2-3 mm. broad, and 1 mm. long. The flowering period is March - April, fruiting period is April - May. This plant is endangered in Georgia and threatened in the United States.

Isoetes tegetiformans, common name "Mat-forming Quillwort" was last observed in the Chestnut Mountain quadrant in June 1987. The habitat of this perennial aquatic fern ally is the shallow, flat-bottomed depression pools of granite outcrops, and is closely associated with Amphianthus pusillus. The pools occur in natural solution pits that are entirely rock-rimmed and have accumulated 2-4 cm. of soil. This is an obscure plant evident only when in masse as a greenish mat of clustered, quill-like leaves. The leaves, which arise as plantlets, form an arched elongate, prostrate stem 3-35 mm. and 6-8 mm. wide. The spores are produced in an elliptical, veiled cavity, 1 mm. long on the flared inner surfaces of the leaf bases. Although green plants may be found following wet periods throughout the year, mature spores are most likely, though sporadic, from May to October. Spores are brownish when mature. Isoetes tegetiformans is classified by the state as threatened and is proposed for endangered listing under the Wildflower Preservation Act of 1973. The plant is further classified by the federal government as endangered under provisions of the Endangered Species Act of 1973.

Isoetes melanospora, common name "Black-spored Quillwort," was last observed in the Chestnut Mountain quadrant in March 1986. The habitat of this perennial aquatic fern ally is restricted to the shallow, flat-bottomed depression pools of granite outcrops, and is closely associated with Amphianthus pusillus. The pools occur in natural solution pits or manmade quarry holes, and are generally completely dry in the summer after the spring rains have evaporated. This is a very inconspicuous plant from 2.5-8 cm. tall. The leaves, which arise spirally from a bulbous (corn-like) base, are bunched, linear, slender-tipped, 1-2 mm. wide, up to 8 cm. long, pale towards the base, and green above. The spores are produced in the leaf base in a cavity that is about 5 mm. long. Identification of this species is often difficult due to the size of the plant and the nature of the key morphological characteristics. Spores are produced sporadically from May

[1]Georgia's Protected Plants, (Atlanta: Georgia Department of Natural Resources, 1977).

[2]Freshwater Wetlands and Natural Heritage Inventory, letter to Joe Tichy, Northeast Georgia Regional Development Center, December 1, 1989.

to October and are black when wet and gray when dry. This plant is classified by the state as threatened. The plant is further classified by the federal government as endangered under provisions of the Endangered Species Act of 1973.

Condylura cristata, common name "Star-nosed mole," was last observed in the High Shoals quadrant in September 1950. This animal is not presently listed as protected in the state; however, it is ranked as imperiled in the state because of its rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

Assessment

It is unknown whether these resources are presently affected by incompatible land uses or other human activities. Currently, only federal and state regulations offer any protection to these plants. All three plants are associated with granite rock outcrops. Naturally occurring granite rock outcrops are a significant natural resource due to their visual aesthetics and the habitat which they provide for endangered plant species. The "Star-nosed mole" has no protection under federal or state regulations, but is considered imperiled in Georgia due to its rarity.

Hoschton has no known habitat necessary to support these rare element occurrences. Therefore, local policies to protect these resources are deemed unnecessary.

Parks and Recreation Areas

The are no park or recreation areas within Hoschton in addition to community parks identified in the Community Facilities chapter.

Scenic Views and Sites

No landscapes within the town were identified as scenic; however, a number of developed sites were deemed as important to the town, scenic, and assist in defining the town's character. Sites identified are: the downtown square, large hardwood trees, and historic churches, homes, and cemeteries.

Assessment

This plan supports protecting these resources from incompatible development.

Rivers and Streams

Mulberry River

Several creeks join to form the Mulberry River in Hall County. The river then flows through Gwinnett County and is the border between Barrow and Jackson counties until it flows into the Middle Oconee River north of Athens. The river forms 21.3 miles of the southwest boundary of Jackson County.

This river is about 15-20 feet wide and has a narrow floodplain for the majority of its length. Some sections have been channelized and some sections have been dammed by beavers. The river flows through forests, pastures, and croplands; there are no urbanized areas in the floodplain.

The upland portions of the river basin are classified as oak-pine with species characteristic of that type forest. The steep slopes are vegetated with swamp chestnut oak, white oaks, red oaks and hickories with an understory of dogwood and other typical Piedmont vegetation. The seasonally flooded bottomlands or palustrine forested wetlands are dominated by maple, yellow poplar, sweet gum, elm, privet, and hop hornbean.

This area provides habitat for deer, squirrel, rabbit, quail, woodcock, fox, various songbirds and some turkeys. According to Natural Resources Conservation Service personnel, it is a very good waterfowl area.

River Corridor Protection

The protection of river corridors is critical to protecting the quality of surface waters against nonpoint source pollutants. The enactment of the Clean Water Act and its subsequent amendments, encouraged the clean up of point source contaminants by requiring states to establish and enforce water quality standards. However, as a result of the cleanup of concentrated pollution from specific sites, nonpoint source pollutants have increased in relative importance and now account for more than 50 percent of the pollution in U.S. waters. Nonpoint source pollutants include sediment, nutrients, pesticides, animal wastes and other substances that enter our water supply as components of runoff and ground water flow.

The establishment and maintenance of streamside forests are the most crucial elements in the protection of river corridors. The streamside forest functions as a filter by removing sediment -- probably the most common and most easily recognized of nonpoint source pollutants -- and other suspended solids from surface runoff. Sediment suspended in water can reduce or block the penetration of sunlight and adversely affect the growth and reproduction of beneficial aquatic plants. Sediment deposited on the stream bottom can interfere with the feeding and reproduction of bottom dwelling fish and aquatic insects, weakening the food chain. Large deposits of sediment can overfill stream channels and floodplains, increasing the potential for flooding.

Streamside forests can be effective in removing excess nutrients from surface runoff and shallow groundwater and in shading streams to optimize light and temperature conditions for aquatic plants and animals. Streamside forests also can ameliorate the effects of some pesticides, and directly provide dissolved and particulate organic food needed to maintain high biological productivity and diversity in the associated stream.

A "protected river" includes any perennial river or watercourse with an average annual flow of 400 cubic feet per second as determined by the U.S. Geological Survey. The Department of Natural Resources requires any local government with such a resource adopt a river corridor protection ordinance.

Assessment

No river in Hoschton meets the DNR "protected river" criteria.

Protected Mountains

The Environmental Planning Criteria provides for the protection of all land that lies above a 2,200 foot elevation and has a slope of 25 percent or greater for at least 500 feet horizontally. No land in Hoschton meets this criterion.

Coastal Resources

The Environmental Planning Criteria provides for the protection of coastal resources that are vulnerable to the impacts of development. This includes beaches, coastal marshes and estuaries. No land in Hoschton meets this criterion.

Floodplains

Flood hazard boundary maps were prepared for Hoschton.

Assessment

Generally, floodplains are not impacted by development and existing floodplain management is adequate for current and future development.

Environmental Planning Criteria

Environmental Planning Criteria prepared by the Georgia Department of Natural Resources, established minimum standards for local governments to protect water supply watersheds, groundwater recharge areas, wetlands, and river corridors. This protection is essential to public health, safety and welfare.

Water Supply Watershed

Hoschton does not lie within a small water supply watershed.

Groundwater Recharge Areas

None of Hoschton lies within a groundwater recharge area.

Wetlands

Freshwater wetlands are transitional lands between terrestrial and aquatic systems which are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The ecological parameters for designating wetlands include hydric soils, hydrophytic vegetation, and hydrological conditions that involve a temporary or permanent source of water to cause soil saturation.

The State of Georgia has provided criteria in §391-3-16(3)(c) "Criteria for Wetlands Protection" which describes for local government minimal considerations for wetlands protection in the land use planning process with regard to wetlands identified in the Department of Natural Resources freshwater wetlands' database. Those minimal considerations are as follows:

1. Whether impacts to an area would adversely affect the public health, safety, welfare, or the property of others.

2. Whether the area is unique or significant in the conservation of flora and fauna including threatened, rare or endangered species.

3. Whether alteration or impacts to wetlands will adversely affect the function, including the flow or quality of water, cause erosion or shoaling, or impact navigation.

4. Whether impacts or modification by a project would adversely affect fishing or recreational use of wetlands.

5. Whether an alteration or impact would be temporary in nature.

6. Whether the project contains significant state historical and archaeological resources, defined as "Properties On or Eligible for the National Register of Historic Places."

7. Whether alteration of wetlands would have measurable adverse impacts on adjacent sensitive natural areas.

8. Where wetlands have been created for mitigation purposes under Section 404 of the Clean Water Act, such wetlands shall be considered for protection.

It is critical to understand that all freshwater wetlands identified by DNR are protected by federal law and are subject to the same minimal land-use planning considerations defined by the state of Georgia.

Wetlands in Hoschton are predominately palustrine wetlands, traditionally called by such names as marsh, swamp, bog, fen, and prairie wherever they are found throughout the United States.

Assessment

Federal and state regulations offer some protection to Hoschton's wetlands. However, Georgia requires all jurisdictions with such resources to adopt a local protection ordinance.

To comply with the Department of Natural Resource standards, Hoschton should adopt and implement a local ordinance that requires consideration of the eight issues detailed above. In addition, the local ordinance should allow the following uses provided there is no long term impairment of wetland function: wildlife and fisheries management, wastewater treatment, recreation, and natural water quality treatment or purification.

Needs

- Protect environmental, natural, and rural resources.

- Forest resources should be protected for their environmental and aesthetic value as well as the increased value of development when these resources are protected. Clear-cut harvesting prior to development should be limited in order to preserve existing, mature trees which will enhance the completed development and facilitate mitigation of future water quality degradation. Adopt and implement a tree ordinance.

- Protect water resources from contamination and degradation.

- Enforce ordinances.

- Prohibit degradation and destruction of wetlands. Adopt a local ordinance based on the DNR wetlands protection criteria.

- Protect identified scenic areas from adverse development as these resources define the city's character.

Goals and Policies

Goal: Conserve and protect environmental, natural, and rural resources.

- Policy: Encourage protection of sufficient forest resources to prevent loss of habitat and support habitat diversity.
- Policy: Conserve forest resources in general. More specifically, do not allow sacrifice of forest resources for development.
- Policy: Provide for open space conservation areas.
- Policy: Enforce ordinances and educate officials about existence of and importance of ordinances.
- Policy: Protect water resources for contamination and degradation.
- Policy: Consider cumulative effect of soil erosion on water resources.
- Policy: Provide for greenspace/greenways throughout the city.
- Policy: Provide for replacement of defined percentage of vegetative cover on developed properties.
- Policy: Protect Hoschton's rural character.
- Policy: Provide for undisturbed vegetative buffers adjacent to streams.